

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	5318	osi with model	US-PGPUB; USPAT; EPO; IBM_TDB	OR	ON	2005/09/28 14:13
S2	41362	network with layer	US-PGPUB; USPAT; EPO; IBM_TDB	OR	ON	2005/09/23 20:06
S3	5449766	@ad<"20011214"	US-PGPUB; USPAT; EPO; IBM_TDB	OR	ON	2005/09/23 20:06
S4	29220	protocol with layer	US-PGPUB; USPAT; EPO; IBM_TDB	OR	ON	2005/09/23 20:06
S5	53938	S2 S4	US-PGPUB; USPAT; EPO; IBM_TDB	OR	ON	2005/09/23 20:06
S6	2973742	insert\$3 add\$3	US-PGPUB; USPAT; EPO; IBM_TDB	OR	ON	2005/09/23 20:07
S7	3052757	identifier id number tracking signature hash code version	US-PGPUB; USPAT; EPO; IBM_TDB	OR	ON	2005/09/23 20:07
S8	3776627	generat\$3 mak\$3 compos\$3	US-PGPUB; USPAT; EPO; IBM_TDB	OR	ON	2005/09/23 20:07
S9	313859	S6 with S7	US-PGPUB; USPAT; EPO; IBM_TDB	OR	ON	2005/09/23 20:07
S10	590091	S8 with S7	US-PGPUB; USPAT; EPO; IBM_TDB	OR	ON	2005/09/23 20:08
S11	56872	"international business machines". as.	US-PGPUB; USPAT; EPO; IBM_TDB	OR	ON	2005/09/23 20:08
S12	11229	ibm.as.	US-PGPUB; USPAT; EPO; IBM_TDB	OR	ON	2005/09/23 20:08

S13	147772	S9 and S10	US-PGPUB; USPAT; EPO; IBM_TDB	OR	ON	2005/09/23 20:08
S14	68043	S11 S12	US-PGPUB; USPAT; EPO; IBM_TDB	OR	ON	2005/09/23 20:09
S15	142732	S13 not S14	US-PGPUB; USPAT; EPO; IBM_TDB	OR	ON	2005/09/23 20:09
S16	97295	S15 and S3	US-PGPUB; USPAT; EPO; IBM_TDB	OR	ON	2005/09/23 20:09
S17	4861	S5 and S16	US-PGPUB; USPAT; EPO; IBM_TDB	OR	ON	2005/09/23 20:09
S18	654	S1 and S17	US-PGPUB; USPAT; EPO; IBM_TDB	OR	ON	2005/09/23 20:09
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S25	2975667	insert\$3 add\$3	US-PGPUB; USPAT; EPO; IBM_TDB	OR	ON	2005/09/28 14:40
S26	3140055	identifier\$2 id\$2 number\$2 tracking signature\$2 hash\$2 code\$2 version\$2	US-PGPUB; USPAT; EPO; IBM_TDB	OR	ON	2005/09/28 14:40
S27	29876	protocol with layer\$2	US-PGPUB; USPAT; EPO; IBM_TDB	OR	ON	2005/09/28 14:40
S28	5326	osi with model	US-PGPUB; USPAT; EPO; IBM_TDB	OR	ON	2005/09/28 14:40
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S30	330264	S25 with S26	US-PGPUB; USPAT; EPO; IBM_TDB	OR	ON	2005/09/28 14:41

S31	8991	S24 same S30	US-PGPUB; USPAT; EPO; IBM_TDB	OR	ON	2005/09/28 14:42
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S42	0	"international business machines \$".as.	US-PGPUB; USPAT; EPO; IBM_TDB	OR	ON	2005/09/28 16:20

S43	56932	"international business machines". as.	US-PGPUB; USPAT; EPO; IBM_TDB	OR	ON	2005/09/28 16:20
S44	5535	S43 and network and layer	US-PGPUB; USPAT; EPO; IBM_TDB	OR	ON	2005/09/28 16:21
S45	951	S44 and (identifier id) and header	US-PGPUB; USPAT; EPO; IBM_TDB	OR	ON	2005/09/28 16:21
S46	648	S45 and packet	US-PGPUB; USPAT; EPO; IBM_TDB	OR	ON	2005/09/28 16:37
S47	2689578	encapsulat\$4 wrap\$4 packet\$3 fram\$3 enclos\$3 append\$3	US-PGPUB; USPAT; EPO; IBM_TDB	OR	ON	2005/09/28 16:38
S48	122332	header\$2	US-PGPUB; USPAT; EPO; IBM_TDB	OR	ON	2005/09/28 16:38
S49	3050221	id identifier number signature counter tracker	US-PGPUB; USPAT; EPO; IBM_TDB	OR	ON	2005/09/28 16:38
S50	53040	S48 same S49	US-PGPUB; USPAT; EPO; IBM_TDB	OR	ON	2005/09/28 16:39
S51	45798	S47 and S50	US-PGPUB; USPAT; EPO; IBM_TDB	OR	ON	2005/09/28 16:39
S52	5450341	@ad<"20011214"	US-PGPUB; USPAT; EPO; IBM_TDB	OR	ON	2005/09/28 16:39
S53	30078	S51 and S52	US-PGPUB; USPAT; EPO; IBM_TDB	OR	ON	2005/09/28 16:39
S54	19897	network\$3 and S53	US-PGPUB; USPAT; EPO; IBM_TDB	OR	ON	2005/09/28 16:40

S55	3991	"709"/\$.ccls. and S54	US-PGPUB; USPAT; EPO; IBM_TDB	OR	ON	2005/09/28 16:40
S56	3573	S55 not S43	US-PGPUB; USPAT; EPO; IBM_TDB	OR	ON	2005/09/28 16:40
S57	5329	osi with model\$2	US-PGPUB; USPAT; EPO; IBM_TDB	OR	ON	2005/09/28 16:40
S58	381	S56 and S57	US-PGPUB; USPAT; EPO; IBM_TDB	OR	ON	2005/09/28 16:40
S59	38479	protocol same layer\$2	US-PGPUB; USPAT; EPO; IBM_TDB	OR	ON	2005/09/28 16:41
S60	358	S58 and S59	US-PGPUB; USPAT; EPO; IBM_TDB	OR	ON	2005/09/28 16:41
S61	1280545	"37" not S38	US-PGPUB; USPAT; EPO; IBM_TDB	OR	ON	2005/09/28 16:42
S62	358	S60 not S38	US-PGPUB; USPAT; EPO; IBM_TDB	OR	ON	2005/09/28 16:42



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Relevance scale ☐ ☐ ☐ ☐ ☐**1** [The transport layer: tutorial and survey](#)

Sami Iren, Paul D. Amer, Phillip T. Conrad


December 1999 **ACM Computing Surveys (CSUR)**, Volume 31 Issue 4**Publisher:** ACM PressFull text available:  [pdf\(261.78 KB\)](#)Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Transport layer protocols provide for end-to-end communication between two or more hosts. This paper presents a tutorial on transport layer concepts and terminology, and a survey of transport layer services and protocols. The transport layer protocol TCP is used as a reference point, and compared and contrasted with nineteen other protocols designed over the past two decades. The service and protocol features of twelve of the most important protocols are summarized in both text and tables. < ...

Keywords: TCP/IP networks, congestion control, flow control, transport protocol, transport service

2 [SE-OSI: a prototype support environment for Open Systems Interconnection](#)


Owen Newnan

April 1992 **ACM SIGCOMM Computer Communication Review**, Volume 22 Issue 2**Publisher:** ACM PressFull text available:  [pdf\(1.25 MB\)](#)Additional Information: [full citation](#), [abstract](#), [index terms](#)

SE-OSI is a prototype of a support environment (SE) for Open Systems Interconnection (OSI). Written in the C++ programming language, it demonstrates object-oriented application programming interfaces (APIs) for OSI as well as Open Distributed Processing (ODP) and investigates transparent transition to OSI and ODP through use of common APIs. Preliminary benchmarks suggest that the SE-OSI approach is suitable for real-time applications. This approach is contrasted with communications APIs currently ...

3 [Security protocol for Frame Relay](#)

Panagiotis Katsavos, Vijay Varadharajan

October 1993 **ACM SIGCOMM Computer Communication Review**, Volume 23 Issue 5**Publisher:** ACM PressFull text available:  [pdf\(1.41 MB\)](#)Additional Information: [full citation](#), [abstract](#), [index terms](#)

This paper considers the protection of traffic using the Frame Relay service. First, we briefly describe the structure and functionality of the Frame Relay interface. Differences between the PTTs and the private vendor community with respect to Frame Relay interface are outlined. Then, we consider why the existing security protocols are inadequate in protecting the Frame Relay traffic effectively. This leads to the proposal of a

new security sublayer (SFRC) which provides *Secure Frame Relay C...*

4 Distributed operating systems



Andrew S. Tanenbaum, Robbert Van Renesse

December 1985 **ACM Computing Surveys (CSUR)**, Volume 17 Issue 4

Publisher: ACM Press

Full text available: pdf(5.49 MB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)

Distributed operating systems have many aspects in common with centralized ones, but they also differ in certain ways. This paper is intended as an introduction to distributed operating systems, and especially to current university research about them. After a discussion of what constitutes a distributed operating system and how it is distinguished from a computer network, various key design issues are discussed. Then several examples of current research projects are examined in some detail ...

5 Network security probe



P. Rolin, L. Toutain, S. Gombault

November 1994 **Proceedings of the 2nd ACM Conference on Computer and communications security**

Publisher: ACM Press

Full text available: pdf(1.04 MB)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Many current approach to access control assume all external access are dangerous. As a consequence they stop all communication and check for authorisation. We present an optimistic approach to provide security services in a network environment that do not interject the security services into the operational sequence, rather, the security services are established as a parallel set of services/steps. This optimistic approach let go the communication and checks in parallel for authorization, i ...

Keywords: Network Security Probe, access control, audit, intrusion, security

6 Draft report of the Federal Internetworking Requirements Panel, and selected responses



Diane Fountaine

April 1994 **ACM SIGCOMM Computer Communication Review**, Volume 24 Issue 2

Publisher: ACM Press

Full text available: pdf(4.15 MB)

Additional Information: [full citation](#), [index terms](#)

7 Defining faster transfer syntaxes for the OSI presentation protocol



C. Huitema, A. Doghri

October 1989 **ACM SIGCOMM Computer Communication Review**, Volume 19 Issue 5

Publisher: ACM Press

Full text available: pdf(577.82 KB)

Additional Information: [full citation](#), [abstract](#), [citations](#), [index terms](#)

In an heterogeneous environment, applications must agree the structure and a binary representation of the exchanged data. This can a priori be done by adopting by the two standards proposed by ISO: the *Abstract Syntax Notation 1* (ASN-1) and the *ASN-1 basic encoding rules* (ASN1-BER). However, the ASN1-BER conversion procedures are highly CPU consuming, which is not acceptable for several "high speed" applications. We propose to use the presentation layer negotiation to select faster ...


8 Mechanisms that enforce bounds on packet lifetimes



Lansing Sloan


November 1983 **ACM Transactions on Computer Systems (TOCS)**, Volume 1 Issue 4

Publisher: ACM Press

Full text available:  [pdf\(1.10 MB\)](#)Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)


Keywords: internetwork gateways, link-layer protocols, maximum packet lifetime, network-layer protocols, packet switching, subnetworks, three-way handshake, timer-based protocols, transit-time protocols, transport protocols

9 A network management language for OSI networks

 U. Warrier, P. Relan, O. Berry, J. Bannister


August 1988 **ACM SIGCOMM Computer Communication Review , Symposium proceedings on Communications architectures and protocols SIGCOMM '88**, Volume 18 Issue 4

Publisher: ACM Press

Full text available:  [pdf\(1.04 MB\)](#)Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Managing the communications resources of a computer network is critical to the successful operation of the network. A network management system is expected to manage a large collection of network nodes remotely. There is an obvious need for sophisticated network management application software in this process. Previous network management systems have been designed without particular regard for the application programmer's interface requirements. We propose that such software be written in a ...

10 The Totem multiple-ring ordering and topology maintenance protocol

 D. A. Agarwal, L. E. Moser, P. M. Melliar-Smith, R. K. Budhia

May 1998 **ACM Transactions on Computer Systems (TOCS)**, Volume 16 Issue 2


Publisher: ACM Press

Full text available:  [pdf\(367.16 KB\)](#)Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)

The Totem multiple-ring protocol provides reliable totally ordered delivery of messages across multiple local-area networks interconnected by gateways. This consistent message order is maintained in the presence of network partitioning and remerging, and of processor failure and recovery. The protocol provides accurate topology change information as part of the global total order of messages. It addresses the issue of scalability and achieves a latency that increases logarithmically with ...

Keywords: Lamport timestamp, network partitioning, reliable delivery, topology maintenance, total ordering, virtual synchrony

11 Security issues with TCP/IP

 Renqi Li, E. A. Unger

June 1995 **ACM SIGAPP Applied Computing Review**, Volume 3 Issue 1

Publisher: ACM Press

Full text available:  [pdf\(801.12 KB\)](#)Additional Information: [full citation](#), [abstract](#), [index terms](#)

An introduction to network security , basic definitions and a brief discussion of the architecture of TCP/IP as well as the Open System Interconnection(OSI) Reference Model open the paper. The relationship between TCP/IP and of some OSI layers is described. An indepth look is provided to the major protocols in TCP/IP suite and the security features and problems in this suite of protocols. The security problems are discussed in the context of the protocol services.

Keywords: TCP/IP, Unix, network security, security

12 A layered networking protocol designed to minimize complexity

Bill Hays, Larry C. Christensen, Gordon E. Stokes, Randy Stokes



February 1988 **Proceedings of the 1988 ACM sixteenth annual conference on Computer science**

Publisher: ACM Press

Full text available: pdf(677.64 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

The design of a networking protocol for the use in connecting heterogeneous computer systems is presented. The design describes a protocol based on a layered philosophy and provides for a minimum cost connections between the computer system in the network. For each layer of the network the design choices used in the network protocol are presented and a simple file transfer mechanism and message passing facility are presented with their interfaces to the network.

13 X.400 MHS: first steps towards an EDI communication standard



Guy Genilloud

April 1990 **ACM SIGCOMM Computer Communication Review**, Volume 20 Issue 2

Publisher: ACM Press

Full text available: pdf(1.17 MB) Additional Information: [full citation](#), [abstract](#), [index terms](#)

Electronic Data Interchange (EDI) is an increasingly important application of computer communications. Until recently, EDI has developed independently of the communications technology and related standards. EDI users coped with this situation by setting up bilateral communications agreements or by using the services of Value Added Data Services centres, which provided protocol conversion. The introduction of X.400 MHS based systems and services is slowly modifying the general attitude towards ED ...

14 A temporal ordering specification of some session services



Vincenza Carchiolo, Alberto Faro, Giuseppe Scollo

June 1984 **ACM SIGCOMM Computer Communication Review , Proceedings of the ACM SIGCOMM symposium on Communications architectures and protocols: tutorials & symposium SIGCOMM '84**, Volume 14 Issue 2

Publisher: ACM Press

Full text available: pdf(663.57 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

The achievement of widely accepted standards for Open Systems Interconnection (OSI) is closely tied to the ability of producing unambiguous and implementation independent specifications of related protocols and services. LOTOS, the Language fOr Temporal Ordering Specification, is a Formal Description Technique (FDT) whose definition, though not completed, has already reached su ...

15 Transmitting time-critical data over heterogeneous subnetworks using standardized protocols



W. Storz, G. Beling

December 1997 **Mobile Networks and Applications**, Volume 2 Issue 3

Publisher: Kluwer Academic Publishers

Full text available: pdf(226.64 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Current communication networks consist of subnetworks of different types. Therefore a common network protocol has to be used for the transmission of data in such a heterogeneous network. Since some time the requirement of mobility in communication networks is showing up. For that reason wireless networks are playing an increasing role as subnetworks. On the other hand there is the need for multiplexed transmission of time-critical and non time-critical (normal) data within a heterogeneous n ...

16 Protocol scrubbing: network security through transparent flow modification



David Watson, Matthew Smart, G. Robert Malan, Farnam Jahanian

April 2004 **IEEE/ACM Transactions on Networking (TON)**, Volume 12 Issue 2

Publisher: IEEE Press

Full text available: pdf(316.54 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

This paper describes the design and implementation of protocol scrubbers. Protocol

scrubbers are transparent, interposed mechanisms for explicitly removing network scans and attacks at various protocol layers. The transport scrubber supports downstream passive network-based intrusion detection systems by converting ambiguous network flows into well-behaved flows that are unequivocally interpreted by all downstream endpoints. The fingerprint scrubber restricts an attacker's ability to determine t ...

Keywords: intrusion detection, network security, protocol scrubber, stack fingerprinting

17 Special session on NOMADS: An architecture to support cooperating mobile embedded systems



Edgar Nett, Stefan Schemmer

April 2004 **Proceedings of the 1st conference on Computing frontiers**

Publisher: ACM Press

Full text available: [pdf\(245.28 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

There is a sustained trend to embed computer systems in all kinds of intelligent products. Increasing emphasis is given to enhance the functionality of such systems beyond the provision of easy-of-use and comfort to more safety-critical tasks where they exert direct control over the intelligent product. Examples of such systems can be exploited in many domains like team robotics, factory automation, transport systems, and intelligent traffic control. To master the inherent complexity, we present ...

Keywords: mobile embedded systems, mobility and adaptivity, modeling of complex systems, service-based architectures, wireless ad-hoc networks

18 Archival storage for digital libraries



Arturo Crespo, Hector Garcia-Molina

May 1998 **Proceedings of the third ACM conference on Digital libraries**

Publisher: ACM Press

Full text available: [pdf\(1.32 MB\)](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

19 U-Net: a user-level network interface for parallel and distributed computing (includes URL)



T. von Eicken, A. Basu, V. Buch, W. Vogels

December 1995 **ACM SIGOPS Operating Systems Review , Proceedings of the fifteenth ACM symposium on Operating systems principles SOSP '95**, Volume 29 Issue 5

Publisher: ACM Press

Full text available: [pdf\(1.84 MB\)](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

20 Applying deductive database technology to network management



Nalin Sharda, Refyul Fatri, Mohammad Abid

January 1997 **ACM SIGCOMM Computer Communication Review**, Volume 27 Issue 1

Publisher: ACM Press

Full text available: [pdf\(1.04 MB\)](#) Additional Information: [full citation](#), [abstract](#), [index terms](#)

Network Management is essential for successful operation of any communications network. Due to the complexity of modern networks, their management requires application of artificial intelligence based techniques. Two essential aspects of any Network Management system are, a large volume of data, and rules applied to this data. Deductive database systems cater for both. In this paper we examine the suitability of deductive database systems for Network Management application. Fundamentals of Netwo ...

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